In the Claims

1. (currently amended) A method for the radiation grafting of a compound that can be grafted onto a fluoropolymer, so as to prevent destabilization of the fluoropolymer, comprising the following steps:

a) melt blending the fluoropolymer with a compound containing a single C=C double bond and at least one polar functional group that is not a carboxylic acid salt functional group, and a stabilizer of at least one graftable metal salt having one of the following formulae:

$$(CH_2=CH\text{-}COO^-)_nM^{n+}$$

$$(CH_2=C(CH_3)\text{-}COO^-)_nM^{n+}$$

$$(CH_2=CH\text{-}Q\text{-}COO^-)_nM^{n+}$$

where Q denotes an optionally substituted, linear or cyclic, aliphatic or optionally substituted aromatic group, n is 1 or 2, and M denotes a metal cation of valence n, which may be chosen from Ca^{2+}, Na^+ and Zn^{2+}, wherein said subscript n and valence n represent the same number;

b) forming the blend obtained at a) into films, sheets, granules or powder;

c) subjecting the products from step b) to photon (γ) or electron (β) irradiation with a dose of between 0.5 and 15 Mrad; and

d) subjecting the products from step c) to a washing and/or a degassing operation,

wherein ~~a~~ an optional antioxidant stabilizer is blended into the fluoropolymer either before or after the irradiation step ~~wherein said stabilizer is a metal salt having a single C=C double bond or a mixture of a metal salt having a single C=C double bond and an antioxidant~~.

2. (currently amended) the method as claimed in claim 1, in which the antioxidant stabilizer is blended into the fluoropolymer before the irradiation.

3. (cancelled)

4. (original) The method as claimed in claim 1, in which the antioxidant

stabilizer is ~~an antioxidant~~ blended into the fluoropolymer after the irradiation.

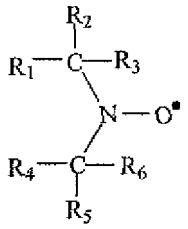
5. (cancelled)

6. (cancelled)

7. (currently amended) The method as claimed in ~~claim 6~~ claim 1, in which when the metal M is Zn, and Q is an $(CH_2)_8$ group, the metal salt is zinc undecylenate.

8. (previously presented) The method as claimed claim 4, in which the content of metal salt after step a) is 0.1 to 10%, of graftable metal salt per 99.9 to 90%, of fluoropolymer.

9. (previously presented) The method as claimed in claim 1, in which the antioxidant is an alkylated monophenol, an alkylated hydroquinone, an alkylidene bisphenol, a benzyl compound, an acylaminophenol, a phosphite, a phosphonite or a nitroxide of general formula:

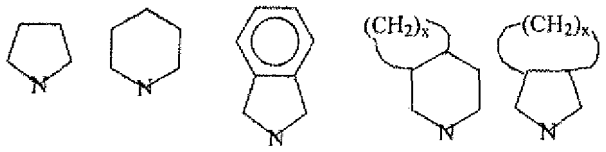


(IX)

in which R_1, R_2, R_3, R_4, R_5 and R_6 denote:

- C_1-C_{20}, preferably C_1-C_{10}, linear or branched alkyl groups, whether substituted or not;
- C_6-C_{30} aryl groups, whether substituted or not, such as benzyl or C_1-C_{30} saturated cyclic aryl(phenyl) groups,

and in which the R_1 and R_4 groups may form part of an R_1-CNC-R_4 cyclic structure optionally substituted, possibly chosen from:



in which x denotes an integer between 1 and 12.

10. (previously presented) The method as claimed in claim 9, in which the antioxidant is 2,6-di-*tert*-butyl-4-methylphenol, 2,6-di-*tert*-butylphenol, 2-*tert*-butyl-4,6-dimethylphenol, 2,6-di-*tert*-butyl-4-ethylphenol, 2,6-di-*tert*-butyl-4-n-butylphenol, 2,6-di-*tert*-butyl-4-isobutylphenol, 2,6-di-cyclopentyl-4-methylphenol, 2-(β-methylcyclohexyl)-4,6-dimethylphenol, 2,6-di-octadecyl-4-methylphenol, 2,4,6-tri-cyclohexylphenol, 2,6-di-*tert*-butyl-4-methoxymethylphenol, o-*tert*-butylphenol, 2,6-dinonyl-4-methylphenol, 2,4-dimethyl-6-(1'-methylundecyl)phenol, 2,4-dimethyl-6-(1'-methylheptadecyl)phenol, tetrakis(3-(3,5-di-*tert*-butyl-4-hydroxyphenyl)propionyloxymethyl)methane, thiodiethylene bis(3,5-di-*tert*-butyl-4-hydroxyhydrocinnamate), or octadecyl-3,5-di-*tert*-butyl-4-hydroxyhydrocinnamate.

11. (previously presented) The method as claimed in claim 1, in which the antioxidant content is 0.001 to 2%, of fluoropolymer.

12. (previously presented) The method as claimed in claim 1, in which the fluoropolymer is PVDF.

13. (original) The method as claimed in claim 12, in which the PVDF contains at least 85% VDF by weight.

14. (withdrawn) A structure comprising at least one layer of the fluoropolymer modified by radiation grafting prepared by the method of claim 1, and at least one layer of another material.

15. (withdrawn) The structure of claim 14 comprising bottles, tanks, containers, pipes, hoses, receptacles, films and packaging.

16. (withdrawn) The structure of claim 14 comprising an inner layer in contact with a fluid to be transported or stored, consisting of the fluoropolymer modified by radiation grafting-and, directly attached thereto, a polyolefin or polyamide outer layer.

17. (withdrawn) The structure as claimed in claim 16, further comprising a PVDF layer ~~is~~ placed beside the layer of fluoropolymer modified by radiation grafting.

18. (withdrawn) The structure as claimed in claim 16, in which a functionalized polymer layer is placed between the layer of fluoropolymer modified by radiation grafting and the polyolefin or polyamide layer, said functionalized polymer having functional groups capable of reacting with the functional groups grafted onto the fluoropolymer.

19. (withdrawn) The structure of claim 14 comprising a layer consisting of the fluoropolymer modified by radiation grafting produced and placed between two polyolefin layers.

20. (withdrawn) The structure as claimed in claim 19, in which a functionalized polyolefin layer is placed between the layer of fluoropolymer modified by radiation grafting and one or both of the polyolefin layers, said functionalized polyolefin having functional groups capable of reacting with the functional groups grafted onto the fluoropolymer.

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (withdrawn) The structure as claimed in claim 16, in which the inner layer in contact with the fluid to be transported or stored may contain carbon black, carbon nanotubes or any other additive capable of making the structure conducting

in order to prevent the build-up of static electricity.

25. (withdrawn) The structure as claimed in claim 14 comprising an outer layer consisting of the fluoropolymer modified by radiation grafting and, directly attached thereto, a layer of a substrate.

26. (withdrawn) The structure as claimed in claim 25, in which a PVDF layer is placed beside the layer of fluoropolymer modified by radiation grafting.

27. (withdrawn) The structure as claimed in claim 25, in which a functionalized polymer layer is placed between the layer of fluoropolymer modified by radiation grafting and the substrate layer, said functionalized polymer having functional groups capable of reacting with the functional groups grafted onto the fluoropolymer, this functionalized fluoropolymer being compatible with the substrate.

28. (withdrawn) A fluoropolymer onto which a graftable compound is radiation-grafted, said fluoropolymer being stabilized by one or more antioxidants.

29. (withdrawn) The fluoropolymer as claimed in claim 28 wherein said fluoropolymer being stabilized by a graftable metal salt and by one or more antioxidants.

30. (cancelled) .

31. (cancelled)

32. (withdrawn) The fluoropolymer as claimed in claim 28, in which the content of graftable compound grafted, that is to say linked to the fluoropolymer via a covalent bond, is 0.1 to 5%, per 99.9 to 95.0%, of fluoropolymer.

33. (withdrawn) The fluoropolymer as claimed in claim 28, in which the content of grafted metal salt, that is to say that links to the fluoropolymer via a covalent bond, is 0.1 to 5%, preferably 0.1 to 2.5%, per 99.9 to 95.0%, preferably

99.9 to 97.5%, of fluoropolymer.

34. (withdrawn) The fluoropolymer as claimed in claim 28, in which the graftable metal salt is zinc undecylenate, sodium undecylenate, or calcium undecylenate.

35. (cancelled)

36. (cancelled)

37. (withdrawn) The fluoropolymer as claimed in claim 28, in which the fluoropolymer is PVDF.

38. (withdrawn) The fluoropolymer as claimed in claim 37, in which the PVDF contains at least 85% PDF by weight.